

ABSTRACT

In a disclosed method for manufacturing a semiconductor device, a lower insulating layer, a lower metal line and an upper insulating layer are sequentially stacked. A first photosensitive film is patterned on the upper insulating layer and the upper insulating layer is subsequently etched. The photosensitive film is removed. An etched portion of the upper insulating layer is then filled with a nitride film. The upper insulating layer is then removed. A second photosensitive film is then patterned and the lower metal line is subsequently etched. An IMD layer is deposited over the resultant construct, thereby forming an air gap within the IMD layer. The IMD layer is planarized. The nitride film is then etched away to thereby form a hole in the IMD layer. The hole is filled with a conductive material to form a contact plug. An upper metal line is deposited over the resultant construct.